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# Modal Platonism and the Problem of Negativity

Matthew Tugby<sup>1</sup>

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**Abstract** The Platonic account of modality says, roughly, that truths about alien possibilities are grounded in uninstantiated universals. Recently, Ingram has raised a problem for this kind of view, which is that it apparently requires negative facts to play a truthmaking role. Ingram offers an alternative Platonic account which makes use of modal instantiation relations. In this paper, I highlight some of the costs of Ingram’s new account and argue that a more appealing version of Platonism—and modal theory in general—is one that is supplemented with an ontology of totality facts.

## 1 Introduction

In a recent article, Ingram (2016) has rightly questioned how a Platonist can provide truthmakers for truths about what is merely possible. Here a mere possibility is understood as one involving an alien property: a property that is not instantiated by anything, but which might have been. As Ingram sees it, my recent Platonic account of mere possibilities involves an implicit commitment to negative facts, which even the most ardent truthmaker theorists should be reluctant to accept. A commitment to negative facts would violate a principle that Ingram calls ‘Positivity’, which says ‘everything that exists is positive’ (2016, p. 1275). A rejection of Positivity, Ingram urges, would be a large theoretical cost, which suggests my Platonic account is not attractive.

Ingram has an alternative Platonic account of modality to offer, which says that truths about what is possible are determined by ‘modal instantiation’ relations. On this modified theory, the truth that *something might have been F* is made true by the

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✉ Matthew Tugby  
matthew.tugby@durham.ac.uk

<sup>1</sup> Department of Philosophy, Durham University, 51 Old Elvet, Durham DH1 3HN, UK

fact that something ‘stands in the modal instantiation relation (*‘possibly-having’*)’ to *F* (2016, p. 1280). Modified instantiation relations have been popular in recent metaphysical work, for instance in McKinnon and Bigelow (2012), where the notion of temporal (*having-had*) instantiation is used. Ingram is (I believe) the first to use modified instantiation relations in modal theory, and this opens up a new line of enquiry in the modal debate.

However, in this paper I shall consider ways of defending an alternative approach for Platonists like me to deal with the problem that Ingram raises. This is worthwhile because, as we shall see, the modal instantiation proposal faces problems of its own. The theory of negativity that I shall recommend to Platonists—and modal theorists in general—is one which appeals to *totality* facts (more on this below). This solution should be attractive to those who, like me, favour the idea that all truths have truthmakers. This is a theory which Ingram considers but he concludes that his own approach, which involves the denial that negative truths have truthmakers, is to be preferred. My aim in this paper is to cast doubt on these conclusions.

## 2 The Problem of Negativity

Why think that modal Platonism involves an implicit commitment to negative facts? Well, according to the theory, the existence of a (Platonic) universal is sufficient for the possibility of that universal’s instantiation. Universals have an irreducible modal aspect to them in the sense that they are by their very nature instantiable (Tugby 2015, p. 35).<sup>1</sup> However, as Ingram points out near the end of his paper, the existence of universals alone cannot provide truthmakers for truths about which possibilities are *mere* possibilities. In cases of *mere* possibility, the universal in question is not instantiated by anything. Yet, the existence of a universal is (obviously) compatible with its being instantiated. This means that the existence of universal alone cannot *necessitate* the truth that a certain possibility is a *mere* possibility. As Ingram puts it:

The fact *that F exists* is compossible with the fact *that a is F* (and so consistent with the truth *that a is F*). And, as such, facts about the mere existence of universals don’t fully determine truths about *what’s merely possible* (2016, p. 1284).

Ingram’s conclusion, then, is that for a modal Platonist like me, the truthmaker for a truth about a possibility being a *mere* possibility must ultimately consist in a *conjunction* of facts: the existence of the relevant universal plus whatever determines the negative truth that the universal has no instantiations. In the latter case the most obvious candidate would be a negative fact.

Ingram has uncovered an important issue here, and it has broad significance. Since mere possibilities are possibilities which have *not* been realized, any modal theorists who are serious about truthmaking must deal with the question Ingram

<sup>1</sup> This means that I reject the existence of universals, such as ‘being a square triangle’, which cannot possibly be instantiated. We will return to the issue of ‘impossible’ universals later in Sect. 3.

raises. I agree that belief in the existence of negative facts is untenable, partly for the reasons Ingram gives. However, as Ingram is well aware, there are alternative ways of dealing with negative truth for people who, like me, think all truths have truthmakers. One of the most popular truthmaking strategies in recent years has been Armstrong's totality fact theory (2004, p. 58). As Ingram explains, 'David Armstrong proposes the existence of a totality fact: a higher-order fact that sums ('totals') all positive lower-order facts and determines that's all there is to reality' (2016, p. 1276). More precisely, a totality fact is best understood as an irreducibly complex fact: the first-order fact that a collection of entities exists combined with the higher-order fact that those are all the entities of that kind.<sup>2</sup> On this theory, then, the truthmaker for the truth that a property *F* is *not* instantiated is the fact that such-and-such property instantiations exist, combined with the (higher-order) fact that those are all the instantiations that there are. Since, by hypothesis, an instantiation of *F* will not be among those first-order instantiations, the totality fact necessitates the truth that *F* is not instantiated. If we combine this approach with my Platonic view, we are left with the following account: truths about possibilities being mere possibilities are made true by the existence of the relevant universals together with the totality fact that such-and-such property instantiations are all that there are.

As mentioned above, Ingram argues that, ultimately, this account of mere possibility is more costly than the one he recommends, which utilizes 'modal instantiation' ties. But before addressing Ingram's criticisms, let us consider Ingram's account in more detail and bring some of its own costs to light.

### 3 Ingram's Modal Instantiation Approach

An issue that Ingram has to address concerns what he himself should say about negative truth. For as indicated above, it seems undeniable that the concept of an alien property involves negativity. An alien property is precisely one that is *not* instantiated, but could have been. Ingram's solution is to deny that truths about what is *not* instantiated have truthmakers at all. This option is not open to me because I favour the Armstrongian view that all truths have truthmakers (Tugby 2015, p. 32). However, Ingram urges that one can deny that negative truths have truthmakers while allowing that other truths do. Among these other truths are precisely truths about possibility, which are of the form '*a* might have been *F*' (2016, p. 1280). For Ingram, the truthmaker for these kinds of truths is the fact that the relevant things stand in modal instantiation relations to *F*. In terms of truthmaking, then, Ingram's theory only delivers an account of truths of the form '*a* might have been *F*'. Modal instantiation relations do not themselves make any negative propositions true, because truths about it being possible for *a* to be *F* are compatible with both *a*'s

<sup>2</sup> I am grateful to an anonymous referee for emphasising this point.

being  $F$  and  $a$ 's not being  $F$  (more on this below). Hence, where negative truths are concerned, Ingram is content to say that there are no truthmakers whatsoever.

An important question to ask, though, concerns how this theory accounts for all the kinds of truths that my Platonic theory was attempting to deal with. The main aim of modal Platonism, to recall, is to account for the problematic notion of *mere* possibility. It is therefore important to consider how Ingram's theory accounts for the truth *that a certain possibility is a mere possibility*. When we consider this question, some of the costs of Ingram's theory are brought to light.

First, it seems clear that modal instantiation relations alone cannot determine truths about which possibilities are *mere* possibilities. No matter how many things stand in a modal instantiation relation to a given universal, this alone *cannot necessitate* that the instantiation of that universal is a *mere* possibility. For no matter how many things stand in this modal instantiation relation, this will still be compatible with there being things which instantiate the universal. Hence, the relevant modal instantiation facts do not by themselves necessitate truths about possibilities being *mere* because they are always compatible with those possibilities not being mere possibilities. In fact, what Ingram seems to require after all is something like a totality fact, which ensures that no further things instantiate the universal in question.<sup>3</sup>

Now, Ingram is aware of a worry along these lines. He acknowledges that modal instantiation relations alone do not necessitate which properties are and are not the alien properties. He writes:

... no matter how many particulars stand in the modal instantiation relation ('possibly-having') to  $F$ , such (positive) facts about  $F$  are together insufficient to determine that  $F$  is an alien property. To guarantee that  $F$  is alien, it must be that  $F$  *isn't* instantiated in the standard way, i.e. nothing '*actually has*'  $F$ . Here we apparently require a further fact, determining that all the positive facts there are about particulars '*possibly-having*'  $F$  are *all* the facts there are about  $G$  [*sic.*]. But such a fact is a totality fact and is undoubtedly *negative* (as above) (2016, p. 1280).

Ingram's response to this issue is, as before, that we do not need to provide truthmakers for negative truths. He rhetorically asks 'well, why think that negative truths have truthmakers?' (2016, p. 1280). At this point, however, I think it is important to get clear on whether truths about possibilities being *mere* possibilities really are to be classed purely as negative truths. The apparent need for totality facts suggests that such truths have a negative component. But are they *purely* negatively truths? I think they clearly are not. Consider the following case. It is a purely negative truth that nothing is actually a square triangle. But does it follow that being a square triangle is a mere possibility? Most would say not. Rather, it seems that such a property cannot possibly be instantiated.

<sup>3</sup> Note that the modal instantiation theory is perfectly compatible with acceptance of totality facts. However, as we shall see later, there are reasons for thinking that the pairing of realism about totalities with my Platonic modal theory is more favourable.

I assume that Ingram would not want to say that it is a (mere) possibility for something to be a square triangle. So, it seems that what his view of mere possibility amounts to is this: the truth that a certain possibility (call it F) is a mere possibility is a *conjunction of truths*: the truth that something might be F together with the truth that nothing is actually F. Ingram's metaphysical theory would then say that although the first conjunct has a truthmaker, in the form of modal instantiation facts, the second conjunct does not need a truthmaker (because it is negative).<sup>4</sup> And since nothing stands in a modal instantiation relation to the property of being a square triangle (since nothing could have such a property), Ingram can consistently deny that square triangles are mere possibilities.

This seems like the best way for Ingram's account to go. But unfortunately, there are reasons for thinking this is still not quite satisfactory. The problem is that this account seems to rule out the metaphysical possibility of property instantiations in cases where, as it happens, nothing actual could instantiate such properties. This is because, in line with the interpretation immediately above, a mere possibility requires the existence of an object which stands in a modal instantiation relation to the universal in question. But can we guarantee that all mere possibilities are such that some actual object stands in a modal instantiation relation to the relevant universal? Could there not be 'radically' alien properties, which are so unusual that nothing actual is able to give rise to instantiations of such properties? Maybe we do not even have to illustrate the point with *recherché* examples. For instance, only with the rise of technological developments did certain objects have the capacity to carry out complex computing tasks. Before computers were constructed, it seems that nothing would have stood in a modal instantiation relation to the property of carrying out a complex computing task. Nonetheless, it was surely still the case that such tasks were metaphysically possible. Indeed, maybe there are computer tasks that will forever remain mere possibilities because of technological limitations. Other examples: there are reasons for thinking that, given the structure of the physical world, no physical object could take on the form of a perfect circle. Yet, it seems that perfect circles are metaphysically possible in some sense. If they were not, we would have to say that the property of being a perfect circle has the same modal status as the property of being a square triangle, which seems far too strong. There are many such examples that one could produce. In our world, nothing has the capacity to exhibit a frictionless plane, but again frictionless planes intuitively have a different modal status to square triangles. It is far from clear how Ingram's theory can accommodate these differences. In contrast, an advocate of my theory can say that the metaphysical possibility of alien properties is grounded by the fact that alien properties exist (unlike the property of being a square triangle), regardless of whether anything actual has the capacity to produce an instantiation of those properties.

In response, a proponent of the modal instantiation theory might try to deal with some of the cases above by claiming that although there might be nothing that

<sup>4</sup> For this reason, Ingram's theory amounts to a partial abandonment of the project of providing truthmakers for facts of mere possibility, which some may find alarming. I am grateful to an anonymous referee for raising this point.

directly stands in a modal relation to an alien property, some things might be related to it indirectly, via *iterated* properties. For instance, in the computer case we might say that although there was a time when nothing had the capacity to carry out a computing task, it was nonetheless the case that things stood in the modal instantiation relation to the property to *become* an object which can carry out a complex computing task.<sup>5</sup> In this iterated way, the possibility of complex computing tasks would be preserved.

At first glance, this looks like a promising proposal, and indeed a similar move has been made recently by Vetter (2015), who tries to accommodate the possibility of alien properties within her Aristotelian modal framework. In response to the challenge, Vetter appeals to iterated potentiality:

If an alien natural property is simply a natural property that is never actually instantiated, then there is at least the epistemic possibility that some things—the matter at the beginning of the universe, if nothing else—have or had the potentiality to produce or constitute objects with some such properties (2015, p. 269).

Unfortunately, though, this strategy is limited, as we shall now see.<sup>6</sup> Above I said that, first and foremost, the problem at hand for the modal instantiation theorist concerns ‘radically’ alien properties. Some alien properties are more radical than others, as illustrated by the distinction that Vetter draws between alien properties and *super-alien* properties. Vetter asks: ‘Is it not possible ... that there be objects with (natural) properties that no actual thing ever had a potentiality to have, to produce, or to constitute? Call such properties *super-alien* properties’ (2015, p. 269). Clearly, in the case of super-alien properties, the solution used in the computer case cannot be applied because by definition it is not possible for any worldly objects to become or to compose an object that has the capacity to instantiate a super-alien property (Vetter 2015, p. 265). Hence, in such cases, worldly things do not even have iterated capacities in which to ground the possibility of such properties.

Do any of the examples outlined above fall into the super-alien category? It seems that they do, on the plausible assumption that nothing has the capacity to do what is physically impossible. Since, unlike the computer case, it is physically impossible to produce a frictionless plane, the latter looks like an example of a super-alien property on Vetter’s definition. How, then, can super-alien properties be dealt with by a modal instantiation theorist? It seems there are two options, both of which come at a theoretical cost.

<sup>5</sup> I am grateful to an anonymous referee for raising this particular example.

<sup>6</sup> Note also that there is a further complication regarding the iterated property strategy. Positing iterated modal properties will hardly be straightforward because it seems implausible to think that, before computers were invented, any one object had the capacity to become an object that can carry out a computing task. This is for the obvious reason that computers are composed of a diverse range of materials and components. This means that it would have to be a plurality of objects which stood in the modal instantiation relation to the relevant iterated property. In short, then, this proposal plausibly commits us to the notion of plural quantification and plural (many-one) instantiation, which is an ideological cost. Discussing this issue would take us too far from current concerns, but for a list of critics of plural quantification, see Linnebo (2004).

The first option is the one that Vetter opts for, which is to simply deny the metaphysical possibility of super-alien properties. This comes at a cost, as Vetter admits when she describes this as a ‘bullet biting’ strategy (2015, p. 269). For instance, this strategy clashes with our modal intuitions, because instances of super-alien properties (such as frictionless planes) certainly seem conceivable. Moreover, idealisation is commonplace in science and in such cases scientists often theorise about what would or would not be true of super-alien instantiations. It is far from clear how the objectivity of such theorising can be preserved once we are told that super-alien scenarios are as metaphysically incoherent as those involving square triangles.

There is also an important dialectical reason for a proponent of Ingram’s theory to be reluctant to reject the possibility of super-alien properties. Ingram’s theory is developed in the context of a Platonic theory of properties, and as Vetter acknowledges (2015, pp. 269–270), one of the main strengths of Platonism is that it apparently has the resources to accommodate the metaphysical possibility of all kinds of alien property. If this perceived advantage is renounced by the Platonic modal instantiation theorists, it becomes unclear what advantage Platonism has over Vetter’s Aristotelian theory, at least where modality is concerned. At this point, then, one would wonder why we shouldn’t reject modal instantiation relations in favour of Vetter’s primitive potentialities.

Let us then consider the second option. This is an option which Vetter could have taken but did not. This option is to accept that although no actual concrete objects have the (iterated) capacity to produce super-alien instantiations, there are nonetheless non-concrete possible individuals which have such capacities. According to Williamson’s actualist version of this kind of theory (1998), these possibilities are abstract individuals which are just as actual as the concrete ones. Within Ingram’s framework, one could then accommodate the possibility of super-alien properties by saying that although no concrete objects stand in the modal instantiation relation to super-alien properties, there are nonetheless abstract individuals which stand in such a relation and which thereby secure the metaphysical possibility of such properties.

I shall not attempt to critically assess the possible individuals theory here, but what should immediately be apparent is that the commitment to abstract individuals is a major ontological commitment for the modal instantiation theorist to make. I shall not speculate about whether Ingram would prefer to reject super-alien properties or to accept abstract individuals, but either way, consideration of these issues will help to advance discussion of his theory and bring its precise costs to light. Importantly, though, note that this choice is not one that I have to make, because on my theory it is the existence of a universal alone which secures the metaphysical possibility of its instantiation, and this will be so even if there is nothing which actually has the (iterated) capacity to produce an instance of that property.<sup>7</sup>

<sup>7</sup> Moreover, my theory delivers the correct result that it is not metaphysically possible for there to be a square triangle, because as we saw in footnote 1, my view does not allow the existence of such properties. My argument (2015, p. 35) here is that it is metaphysically incoherent to suppose that a square triangle could be instantiated, and instantiability is the only defining characteristic there can be for a universal. As



## 4 Ingram's Strategy and the Totality Strategy Compared

Let us now make some further comparisons between Ingram's approach to *mere* possibility and the totality fact strategy that I prefer. Ingram does not like the totality fact view and asserts that his own approach is more theoretically conservative. However, it is not clear that Ingram's account of mere possibility really is more theoretically virtuous than the totality fact truthmaking strategy. Ingram rejects the totality fact strategy because it retains an element of negativity. A totality fact, to recall, is a complex fact that *such and such obtains and no more than that obtains*. The second conjunct is negative, but I believe it is questionable whether totality facts are as objectionable as pure negative facts, as we shall now see.

First, it is important to note that totality facts avoid the sort of complaint that motivates Ingram's suspicion of negative ontology. Here, Ingram appeals to Mumford's argument that a negative fact 'sounds like an absence of a fact, and an absence is nothing at all' (Mumford 2007, p. 46, in Ingram 2016, p. 1275). As we saw earlier, a totality fact is a complex fact that has as a constituent a first order fact concerning what *positively* obtains, and for this reason totality facts seem to avoid the main problem facing the negative fact view. Describing totality facts as absences would be to mis-describe them because totality facts are precisely totalities of first-order facts which positively obtain. This is not to say that a totality fact is not partially negative, of course. Again, totalities are complex facts: the first-order fact that a collection of entities exists combined with the higher-order fact those are all the entities of that kind. This higher-order fact involves negativity, because to say that those are *all* the entities is to say that there are *no* more of them. However, the important point for current purposes is that on the totality theory there are no free standing first-order absences. The higher-order totality fact *can only* exist as a constituent in a complex fact which involves positive first-order entities. This is why I take the totality fact approach to be a more moderate theory of negativity than one which accepts the existence of first-order negative facts.

To be fair to Ingram, he does consider the response that partial negativity is more acceptable than full-blown negativity. Even if the totality fact theory is more moderate in some respects, Ingram still maintains that we should be suspicious of any negative ontology whatsoever. A more conservative theory, he suggests, is one that commits to a strong version of the Positivity principle, which says that 'Nothing exists that is negative' (2016, p. 1277). Why, though, should we be so suspicious of all negative ontology? For the purposes of his paper, Ingram does not attempt to say anything new about why we should be suspicious (2016, p. 1275), but appeals to previous arguments by others such as Dodd and Mumford.<sup>8</sup> I have already dealt with Mumford's worry above, which leaves Dodd's. Dodd says that '...ontological

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Footnote 7 continued

I remark (2015, p. 35, fn. 7), this conclusion echoes the one drawn by Bigelow and Pargetter, who appeal to the principle that only coherent predicates can correspond to universals (1990, p. 203).

<sup>8</sup> Ingram (2016, p. 1275) also includes a quotation by Russell, which asserts that negative facts are unpalatable but does not explain why they are unpalatable. Given that this particular quote does not contain an argument, I shall not discuss it further.

commitment to absences would seem to be tantamount to a category mistake. ... absences are not themselves things, and so cannot be truthmakers' (Dodd 2007, p. 388, quoted in Ingram 2016, p. 1275). Now, I think this is a good argument against free standing first-order negative facts: such facts are absences and cannot be considered genuine things—which they would have to be to serve as truthmakers. But can the same argument be applied to totality facts? For the same sorts of reasons raised in connection with Mumford's worry, I think it is far from clear that totality facts cannot be considered as 'things'. Again, totality facts are not free standing first-order absences, as negative facts would have to be. Totality facts are irreducibly complex facts that contain positive first-order facts as constituents. Since those first-order positive facts are clearly things, then it seems reasonable to regard totality facts as things also, given that they are partially constituted by those things. In short, although I agree that the arguments marshalled by Ingram create trouble for proponents of negative facts, it is less clear that those same arguments can be applied successfully to the totality fact theory.<sup>9</sup>

It is also worth noting that there are good independent reasons for thinking that totality facts are more acceptable than negative facts. I will mention two salient reasons here, reasons upon which totality theorists should place more weight. First, it is plausible that, unlike negative facts, totality facts satisfy Armstrong's own criterion for ontological commitment, which is known as the Eleatic Principle. According to this meta-ontological principle, it is acceptable to postulate the existence of an entity only if its existence could make a causal difference to the world. In the case of negative facts, it is far from clear how such facts could have any genuine causal power.<sup>10</sup> In contrast, if we were to suppose that totality facts exist, it is relatively easy to see how they could confer distinctive causal power. For instance, suppose I touch a live wire which is conveying a total current of 100 milliamperes. Suppose that I get severe burns as a result but survive because only total currents above 100 milliamperes would kill me. Here it seems that the relevant totality fact has a distinctive causal power: since the current was at 100 milliamperes *and no more*, I was burned rather than killed.

Second, for all one's qualms about providing truthmakers for negated atomic propositions, it seems reasonable for a truthmaker theorist to expect that universally quantified propositions have truthmakers given that existentially quantified propositions clearly do. However, universal quantifiers are precisely totality operators of sorts: a universal quantifier ranges over everything in the domain of discourse *and nothing more*. Hence, it is *prima facie* plausible that, whatever one's views about

<sup>9</sup> Ingram (2016, p. 1278) also alludes to another objection to the totality fact view from Schaffer, which is that it violates the principle of free recombination (Schaffer 2008, p. 12, fn. 4). Like Ingram, though, I shall not discuss this issue in detail here. I do not think this consideration has a great deal of weight given that many current theories of natural modality already violate free recombination. The thesis of free recombination is a Humean principle and is now firmly rejected by many modal theorists such as the dispositionalists and some nomic primitivists, whose theories commit them to necessary connections between distinct properties.

<sup>10</sup> It has been claimed by some that an absence of water causes a plant to die. But it does not seem plausible to think that this sort of causal explanation is fundamental. Rather, the 'deep' metaphysical story about such cases is that when there is a lack of water, a plant undergoes a *positive* biochemical process which is the genuine cause of its death. See Molnar (2003, pp. 77–79) for further discussion.

negative atomic facts, totality facts will have to be part of the truthmaking story about universally quantified truths.<sup>11</sup> Not enough truthmaker theorists have addressed this issue in the literature, but it is plausible that the rejection of totality facts will come at a truthmaking cost where universal quantification is concerned. Hence, it may be that the strong reading of Ingram's Positivity principle will rule out more cases of truthmaking than is immediately apparent.

There is much more to be said about these issues, but such work will have to be undertaken elsewhere. To conclude this paper we must now address a further argument that Ingram could marshal against totality facts. Clearly, a commitment to totality facts is a theoretical cost in so far as a theory which does without them is *more parsimonious*. In order to assess whether this argument has any weight, we must assess whether Ingram's own modal theory is more parsimonious than a Platonic totality fact view. I shall conclude by arguing that it is not. Although Ingram avoids totality facts, his account of mere possibility involves modal instantiation relations, which are themselves a significant theoretical cost.

Now, as Ingram himself acknowledges, the beauty of totality facts is that you do not require many of them. Rather than invoking, say, a vast array of negative facts, we need only '... a single *all* state of affairs' (Armstrong 2004, p. 58 quoted in Ingram 2016, p. 1277). Of course, Ingram needs neither negative facts nor totality facts. However, in their place his theory of modality requires the instantiation of a modal instantiation relation for *every* fact about possibility.

Perhaps it is a little hasty to conclude that the totality view is more parsimonious, however. First, in terms of *qualitative* parsimony, Ingram's theory and the one proposed here are roughly on a par because they both invoke one *kind* of metaphysical entity that we did not have before. Moreover, according to philosophers like Lewis (1973, p. 87), qualitative parsimony is more theoretically important than *quantitative* parsimony (which merely concerns how many token instances of a given kind of entity exist). Second, it is far from clear that a totality fact theorist can get away with positing just one über totality fact to do all of the truthmaking work. Armstrongian truthmaker theorists are fond of minimal truthmakers, for it is only these which provide *fine grained* metaphysical explanations for a truth. For instance, surely the truth that all humans are mortal more accurately reflects a totality fact about humans rather than the world as whole (namely, the fact that there are no more humans than these and that each of them is mortal). Hence, it is far from clear that the totality fact theory is more quantitatively parsimonious than Ingram's.

Are these responses decisive? I do not think they are. Regarding the distinction between qualitative and quantitative parsimony, it is true that Ingram's theory is no worse off than the totality theory in terms of qualitative parsimony. It is also true that some philosophers think that qualitative parsimony is a more important theoretical consideration than quantitative parsimony. However, even if this last claim is correct (and I have my doubts), it is implausible to think that quantitative parsimony is an *unimportant* theoretical consideration. See, for example, the

<sup>11</sup> It is also worth noting that totality operations are prevalent in science, as in the case of resultant vectors.

arguments of Nolan (1997), who concludes that quantitative parsimony is a genuine theoretical virtue in science. If this is right, then even if Ingram's view and the totality view score equally well on qualitative parsimony, the totality fact theory would still be more attractive if it were quantitatively more parsimonious, all else being equal. Hence, we must now turn to the second objection above, which suggests that the totality theory may not be quite as quantitatively parsimonious as first appears.

My response here is that, indeed, there will have to be a lot of different totality facts so that there are minimal truthmakers for all the totality truths. More precisely, there will have to be a totality fact for every *kind* of thing that we can speak of, such as chairs in a room, mortal humans, and so on. However, this *still* amounts to fewer extra token entities than are needed in the modal instantiation theory. Clearly, there are fewer kinds of thing in existence than there are collective possibilities for individual objects. Indeed, it seems that each object will stand in infinitely many modal instantiation relations.<sup>12</sup> Presumably, for instance, a medium sized malleable object would stand in the modal instantiation relation to being triangular, being square, being pentagon-shaped, being hexagon-shaped and so on. Perhaps these properties are not genuine universals, but even at the level of physics, entities would surely stand in many of Ingram's modal instantiation relations. Fundamental laws are typically functional in nature, which means they cover infinitely many determinate magnitudes. For instance, a charged particle has the potential to undergo a force of 2 dynes, a force of 3 dynes, a force of 4 dynes, and so on. In contrast, it is not the case that there are infinitely many totality facts in, say, a given room. In conclusion, then, although the totality theory and the modal instantiation theory score equally well on qualitative parsimony, it looks like the former theory requires fewer extra token entities overall.

## 5 Conclusion

In summary, Ingram must be applauded for uncovering a neglected issue relating to the role of negative truth in theories of modality. He has also pushed the modal debate forward by proposing a previously unexplored Platonic account of truthmakers for modal truths. However, in this response I have suggested reasons for thinking that an ontology of totality facts provides a more promising way for a modal Platonist—and modal theorists in general—to deal with mere possibility. Among other things, Ingram's account might enforce counterintuitive restrictions on what can count as merely possible and also provides an uneconomical metaphysical account of the possibilities that it does allow.

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<sup>12</sup> See e.g., the work of Martin (2008, p. 5), who argues that the dispositions of an individual are infinite in their directedness.

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